DISTRIBUTION:
Docket File (ENVIRO)
RP-Reading
EP-Files
Project Br. Chief, L WRegan
Licensing Assts, L RWade
AEC PDR
Local PDR
ADEP, DMuller
EP-Reading
OGC-Massar

Docket No. 50-331

MAR 12 1973

Mr. Tony Stadeker
Office of Management and Budget
Executive Office Building
Washington, D.C. 20503

Dear Mr. Stadeker:

Enclosed for your information are two copies of the summary sheet for the Final Environmental Statement prepared by the Commission's Regulatory Staff relating to the facility identified in the enclosure to this letter.

The Final Environmental Statement was prepared in accordance with the statement of general policy and procedure on implementation of the National Environmental Policy Act of 1969 as set out in Appendix D of the Commission's regulations, 10 CFR Part 50. A notice of availability of the Final Environmental Statement is being sent to the Office of the Federal Register for filing and publication.

Sincerely,

Original signed by
Daniel R. Muller

Daniel R. Muller, Assistant Director
for Environmental Projects
Directorate of Licensing

Enclosure:
List Identifying Document

OFFICE ▶	EP-2	EP-4	EP-4	ADEP:L		
SURNAME ▶	LA RWade	PM F. St. Mary	Br. Chief WRegan	DMuller		
DATE ▶	2/ /73	2/12/73	2/12/73	2/ /73		

Form AEC-318 (Rev. 9-53) AECM 0240 ☆ U. S. GOVERNMENT PRINTING OFFICE: 1971 - 446 - 154

SUMMARY AND CONCLUSIONS

This Final Environmental Statement was prepared by the U.S. Atomic Energy Commission, Directorate of Licensing.

1. This action is administrative.

2. The proposed actions are the continuation of construction permit CPPR-70 and the issuance of an operating license to Iowa Electric Light and Power Company, Corn Belt Power Cooperative, and Central Iowa Power Cooperative for the Duane Arnold Energy Center located in Fayette Township, Linn County, Iowa (Docket No. 50-331).

The Center will have one boiling water reactor, which will produce 1658 MWt of heat and have a net electrical output of 569 megawatts. Cooling will be provided by a closed-cycle system using forced-draft cooling towers.

3. The environmental impact and adverse effects are summarized as follows:

a. Approximately 500 acres of farmland have been converted from the production of crops to power plant use.

b. Approximately 1155 acres of land are required for the transmission lines, but only a very small fraction of this land will be preempted from productive use.

c. There have been temporary disturbances of the riverbank and bottom and temporary increases in river turbidity due to construction and dredging activities.

d. There will be temporary discharges of chemicals used for cleaning plant components to the Cedar River, but once they are thoroughly mixed with the riverflow, these discharges will produce no changes exceeding the natural fluctuations in the chemical content of the river water.

e. The discharge of blowdown when chlorine is added to the cooling water may result in high levels of total residual chlorine (up to 0.5 ppm) in the discharge plume. The chlorine levels in local regions may prove to be toxic to biota in the river, particularly to fish attracted to the thermal plume in the winter.

f. The heat in the blowdown water will produce a small thermal plume in the river. But even under the worst of conditions, the temperature of the river will be increased 2°F in a region of less than one acre surface area, and the 2° plume will never extend beyond one quarter of the width of the river. The dissipation of the plume by thorough mixing in the riverflow will increase the temperature of the river 1.1°F at most. This will cause a decrease of not more than 0.5 ppm dissolved oxygen, which is well within normal fluctuations.

g. Up to 15,000 gallons per day of aerated sewage effluent will be discharged to the river without chemical disinfection. Given the present usage of the Cedar River (no swimming, drinking, etc. downstream) no deleterious effects are anticipated. The present Iowa sewage permit will require disinfection of sewage if downstream usage of the Cedar River increases sufficiently.

h. Most biota that pass through the 3/16-in. intake screens in the fraction of the river diverted for cooling (less than 10% during low flows and less than 1% during average flows) will be killed. Fish kills from impingement on screens are expected to be minimal because of the low (<0.75 ft/sec) velocity at the screen.

i. There will be additions of sulfates to the Cedar River in the blowdown water. The additions of sulfates will be limited to 19,500 pounds per day, and the resulting increase in sulfate level within the river should not adversely affect river biota.

j. Consumptive uses of river water will not exceed 7000 gpm (15.6 cfs), or 0.5% of normal riverflow. During low riverflows (less than 500 cfs) water will be released from the Pleasant Creek Reservoir to replace the consumption of river water.

k. Up to 1500 gpm will be pumped from the Silurian-Devonian aquifer. This withdrawal rate may deleteriously affect a large number of wells in the area.

l. Operation of the cooling towers may result in very minor increases in fogging and icing in nearby areas.

m. Operation of the cooling towers will result in a noticeable increase in the noise level at the nearest dwellings which may prove annoying to those involved.

n. The DAEC will discharge gaseous and liquid effluents containing radionuclides that will result in an increased exposure to the local population of less than the normal variation of the natural radioactive background.

o. The risk associated with accidental radiation exposures is very low.

4. The following principal alternatives were considered:

a. Purchase power from outside sources.

b. Construct the plant at an alternative site.

c. Use of fossil fuel in place of nuclear fuel.

d. Use of alternative cooling methods.

e. Use of chlorine control techniques or other biocide control techniques to reduce chlorine discharges.

f. Use of sodium hypochlorite to replace liquid chlorine.

g. Use of refrigeration equipment to reduce the need for well water for plant cooling.

5. The following Federal, State, and local agencies were requested to comment on the Draft Environmental Statement issued in November 1972. Comments that were received from these and other sources are presented in Appendix K, and responses to the comments are given in Section 12.

Advisory Council on Historic Preservation
Department of Agriculture
Department of the Army, Corps of Engineers
Department of Commerce
Department of Health, Education and Welfare

Department of Housing and Urban Development
Department of the Interior
Department of Transportation
Environmental Protection Agency
Federal Power Commission
Iowa Department of Health
Iowa State Conservation Commission
Iowa Environmental Quality Department
Iowa Natural Resources Council
Iowa Air Pollution Control Commission
Iowa Bureau of Labor
Linn County Board of Supervisors

6. This Final Environmental Statement is being made available to the public, to the Council on Environmental Quality, and to the agencies noted above in March 1973.

7. On the basis of the analysis and evaluation set forth in this Statement, after weighing the environmental, economic, technical, and other benefits of the Duane Arnold Energy Center against environmental and other costs and considering the available alternatives, it is concluded that the actions called for under NEPA and Appendix D to 10 CFR Part 50 are the continuation of construction permit CPPR-70 and the issuance of an operating license for the facility subject to the following conditions for the protection of the environment:

a. If the total residual chlorine content in the blowdown effluent exceeds the limits as detailed in the Environmental Technical Specifications for the DAEC, the Applicant shall submit, within 12 months after start of plant operation, a report detailing the steps it intends to take to assure that the total residual chlorine in the blowdown effluent will conform to such limits. In the interim period, when total residual chlorine exceeds these limits the following conditions shall be required:

(i) Development of an aquatic monitoring program to define the area in which total residual chlorine is detectable.

(ii) Development of a program to monitor for effects of chlorine.

(Sections 5.4.3, 6.2.2.a, and 10.5).

b. The Applicant will take appropriate measures through monitoring along with administrative measures and/or design changes to insure that the thyroid dose to critical segments of the general population via the milk pathway does not exceed 5 mrem/year.

c. The Applicant's preoperational radiological monitoring program will be continued into the operational phase, with appropriate modifications acceptable to the Regulatory Staff.

d. The Applicant will define a comprehensive environmental monitoring program for inclusion in the Technical Specifications (for the plant operation) which is acceptable to the Regulatory Staff for determining environmental effects which may occur as a result of the operation of the DAEC.

e. If harmful effects or evidence of irreversible damage are detected by the monitoring programs, the Applicant will provide to the Staff an analysis of the problem and a plan of action to be taken to eliminate or significantly reduce the detrimental effects or damage.